



## Lab's unique contamination test site helps natural environment, saves millions

*by Materials and Manufacturing Directorate*

**TYNDALLAFB, FLA.** — The Air Force Research Laboratory's Materials and Manufacturing Directorate has a unique facility at Dover AFB, Del., which saves millions of dollars while helping restore the natural environment at hazardous waste sites.

Operated by the directorate's Air Expeditionary Forces Technologies Division at Tyndall AFB, Fla., the Dover National Test Site (DNTS) provides the capability to conduct carefully planned, well-controlled experiments involving the release of contaminated liquids into portions of an aquifer. The groundwater contamination test site then uses the results to develop new technologies to clean up chlorinated solvents, fuels and other mixtures at contaminated DoD sites.

"This facility is in high demand, due to its unique capabilities in allowing the equivalent of "live fire" tests with DNAPLs (dense non-aqueous phase liquids)," said Alison Lightner, ML project manager for the site. "Prior to the development of this site, experiments of this nature could not be conducted in the United States."

Soil and groundwater contamination caused by industrial solvents poses a significant problem for the nation and is one of the most difficult clean-up challenges. This is because common solvents, used for many years to maintain weapon systems, are heavier than water and when spilled, tend to filter through the earth until they encounter a soil layer they cannot penetrate. There they form a pool which can contaminate passing groundwater. Unfortunately, they are practically impossible to locate or remove, making them a complex problem of tremendous scale.

The DNTS allows scientists to release contaminants and test faster and cheaper detection, monitoring and removal technologies than are currently available today. Some of the technologies already demonstrated to clean up these contaminants have saved the Air Force millions over conventional methods.

"At Dover, we have completely enclosed and hydraulically contained test cells and we have regulatory approval to put contaminants into the natural aquifer," Lightner said. "This makes the site a national resource which people all over the world want to use."

Approximately one-third of the Air Force's contaminated sites have a DNAPL component, and subsurface clean-up of this appears to be impossible at this time. So researchers need to better understand DNAPL behavior and to develop cost-effective clean-up technologies. The DNTS offers a way to meet these objectives.

"When an organization or a university wants to use the DNTS for an experiment, they must provide a description of the procedure, a plan for conducting it, and they must be fully funded," Lightner said. "Once the request is approved by base and regulatory officials, the organization can come in and start work. We provide the infrastructure, facilities, and permits, as well as experimental oversight."

"The Dover site helps the Air Force restore the environment," Lightner said, "and it saves the Department of Defense, the Air Force and industry millions of dollars that would be spent if this site didn't exist." @